Work Order ID 67415

Monday, March 21, 2011 7:06:11 AM

Item ID: D212-664-207 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** M **Date:** 11-03-21 **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	**Revision Nbr**								
D212-664-247	Rev B								
100		0.00							
DC	DOCUMENT CONTROL								
Document Control	**Memo** Photocopy bluefile and create labels as per PPP D212-664-207 CHG001	0.00							
110	Pick Kit	0.00							
Packaging	Packaging								
Packaging	**Memo**	0.00							
120		0.00							
CNC Bend 2	BENDING MACHINE - CROSSTUBES								
CNC Alpha 160 Bender	**Memo** Bend tube as per Dwg D212-664-247 using CNC bender program FT	0.00							

and Folio

B67415

11-6-16

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:11 AM

Item ID: D212-664-207 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC15- Crosstube Dimensional Check	0.00							
QC	**Memo**	0.00							
Quality Control									
140		0.00							
Crosstubes	Crosstubes								
Crosstubes	**Memo**	0.00							

8 w/oc/16

1-Drill Rivet holes as per Dwg D212-664-247 using DT8972.***Use T-Pin***

2-Drill pilot holes in tube as per Dwg D212-664-247 using DT8550 and DT8551

3-Ream hole to finish size in tube as per Dwg D212-664-247

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-247

5-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-247

JW SAD 11-06-20

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:11 AM

Item ID: D212-664-207 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Crosstubes Chemical Conversion	0.00							
HandFXtube	**Memo**	0.00							
Hand Finishing Crosstubes	Chemical Conversion Coat Tube & Cuffs	JW SAD 11-06-20							
160	QC3- Inspect Part Finish	0.00							
QC	**Memo**	0.00 S 11/04/21							
Quality Control									
170	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00 S 11/04/21							
Quality Control									

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:11 AM

Item ID: D212-664-207 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Outsource process - NDT per QSI038 4.1	0.00							
Outsource2	**Memo**	0.00							
Outsource process - NDT	Liquid Penetrant Inspection as per QSI 038 Issue P/O: 14332 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order					CL	11/06/21	1	
190	Receive & Inspect for Damage & Mat'l Certs	0.00							
Packaging	Packaging								
Packaging	**Memo**	0.00							
	Ensure copy of NDT results attached to work order.						11/8/21	1	
200	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00							
Quality Control	Inspect for damage & ensure results are as per Dwg D212-664-207						11 06 22	1	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:11 AM

Item ID: D212-664-207 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start **Stop**

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210		0.00							
Crosstubes	Crosstubes								
Crosstubes	**Memo**	0.00							
Crosstubes	1-Rivet and assemble Cuffs with T-Pin in the through bolt holes as per Dwg D212-664-247. with Sika flex in Between tube & Cuff A/R SIKAFLEX -241/-291 BATCH: 117516								
215	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00							
Quality Control	***Inspect cuff with T-Pin***								

5 w/ 06173

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:12 AM

Item ID: D212-664-207 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start **Stop**

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	Spray Painting per QSI005 4.2	0.00							
SprayPaint	SprayPaint								
	Memo	0.00							
Spray Painting	1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2 PRIME: Start Time: 10:00 Fininsh Time: 11:00 PAINT: Start Time: 3:00 Finish Time: 4:30						11	06	21
230	QC14- Inspect Spray Paint	0.00							
QC									
	Memo	0.00							
Quality Control	Wrap in plastic bag to protect from scratches								

AT 11 -06 -22

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:12 AM

Item ID: D212-664-207 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start **Stop**

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240		0.00							
Crosstubes	Crosstubes					11		06	22 (1)
Crosstubes	**Memo**	0.00							

Crosstubes

1- Assemble as per Dwg D212-664-247

2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe

3- Instal support with Proseal per dwg D212-664-247, cure for 12hrs before packaging.

Time & date of application: 11:30

Batch: 117510

EXP. DATE 08/2011

Torque: M 11:06:23 (1)

250	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00							

Quality Control

8 ul 24/23

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:12 AM

Item ID: D212-664-207 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start **Stop**

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
255	Pick Kit	0.00							
Packaging	**Memo**	0.00							
Packaging									
260	QC4- 100% Inspect kits for completeness	0.00							
QC	**Memo**	0.00							
Quality Control									
270	Packaging	0.00							
Packaging	**Memo**	0.00							
Packaging	Identify and pack for shipping as per PPP D212-664-207								

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 67415

Monday, March 21, 2011 7:06:12 AM

Item ID: D212-664-207 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 3/31/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
280	QC21- Final Inspection - Work Order Release	0.00					11/6/23		
QC	**Memo**	0.00							
Quality Control									

MF
11-06-23

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Monday, March 21, 2011 7:06:17 AM

4

Work Order ID: 67415

Parent Item: D212-664-207

Parent Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Required Date:** 3/31/2011

Start Qty: 1.00 **Required Qty:** 1.00

Comments:
IPP Rev:A New Issue 07.09.12 EC verified by: JLM
IPP Rev:B ECN 1100p 08-01-11 DD verified by: EC
IPP Rev:C ECN 1121 08-02-25 DD verified by:eC
IPP Rev: D QC5 replaced by QC15 at step 5 KJ Verified by: ec

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-207TRNRevA		Manufactured	No			110	Each	0.0000	1	1			
Crosstube Turning Detail					B62902					SAD	11-06-15		
D3660-1		Manufactured	No			140	Each	12.0000	2	2			
CUFF										SAD	11-06-17		
				Location		**Loc Qty**		**Loc Code**					
				ST477	B67782	12				(2)			
				53501		2							
				62225		10							
CR3212-4-06		Purchased	No			220	Each	1,156.000	44	44			
CHERRY RIVET											11.06.21		
				Location		**Loc Qty**		**Loc Code**					
				ST311		1156							
				112492		156							
				112724		200							
				112794		800							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Monday, March 21, 2011 7:06:17 AM

Work Order ID: 67415

Parent Item: D212-664-207

Parent Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Required Date:** 3/31/2011

Start Qty: 1.00 **Required Qty:** 1.00

D3595-063-530 Manufactured No 240 Each 65.0000 4 4

RUBBER CUSHION

B# 67185

Location	Loc Qty	Loc Code
FP	26	
50030	8	
51776	18	
LG055	39	
59581	13	
63407	26	

D2940-1 Manufactured No 240 Each 21.0000 2 2

Support

B# 70737

Location	Loc Qty	Loc Code
LG052	21	
45203	1	
60271	20	

MS21920-28 Purchased No 240 Each 86.0000 4 4

Clamp(per MIL-DTL-8783C)

B# 117344 x1

B# 117998

Location	Loc Qty	Loc Code
FG	5	
105884	5	
LG050	75	
116039	24	
116839	51	
LG051	6	
114749	6	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Monday, March 21, 2011 7:06:18 AM

Work Order ID: 67415

Parent Item: D212-664-207

Parent Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Required Date:** 3/31/2011

Start Qty: 1.00 **Required Qty:** 1.00

D3428-1	Manufactured	No		255	Each	29.0000	1	1	6F520
Placard									

Location	Loc Qty	Loc Code
ST053	29	
63978	5	
66115	12	
66961	12	

MS21042L6	Purchased	No		255	Each	219.0000	6	6	M117343
Nut									

Location	Loc Qty	Loc Code
ST300	219	
111578	4	
116102	15	
116373	100	
116548	100	

AN960JD616 NAS1149D0663J	Purchased	No		255	Each	0.0000	18	18	M117291
Washer									
AN6-40A	Purchased	No		255	Each	75.0000	4	4	M117366 Lot#/230
Bolt									

Location	Loc Qty	Loc Code
ST343	75	
112828	1	
115300	34	
115905	20	
116549	20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Monday, March 21, 2011 7:06:18 AM

Work Order ID: 67415

Parent Item: D212-664-207

Parent Item Name: Crosstube Low Standard Aft

Start Date: 3/21/2011 **Required Date:** 3/31/2011

Start Qty: 1.00 **Required Qty:** 1.00

AN6-41A	Purchased	No	255	Each	36.0000	2	2

Bolt

m117688 11/6/23

Location	Loc Qty	Loc Code	
ST344	36		
113288	6		
115316	30		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

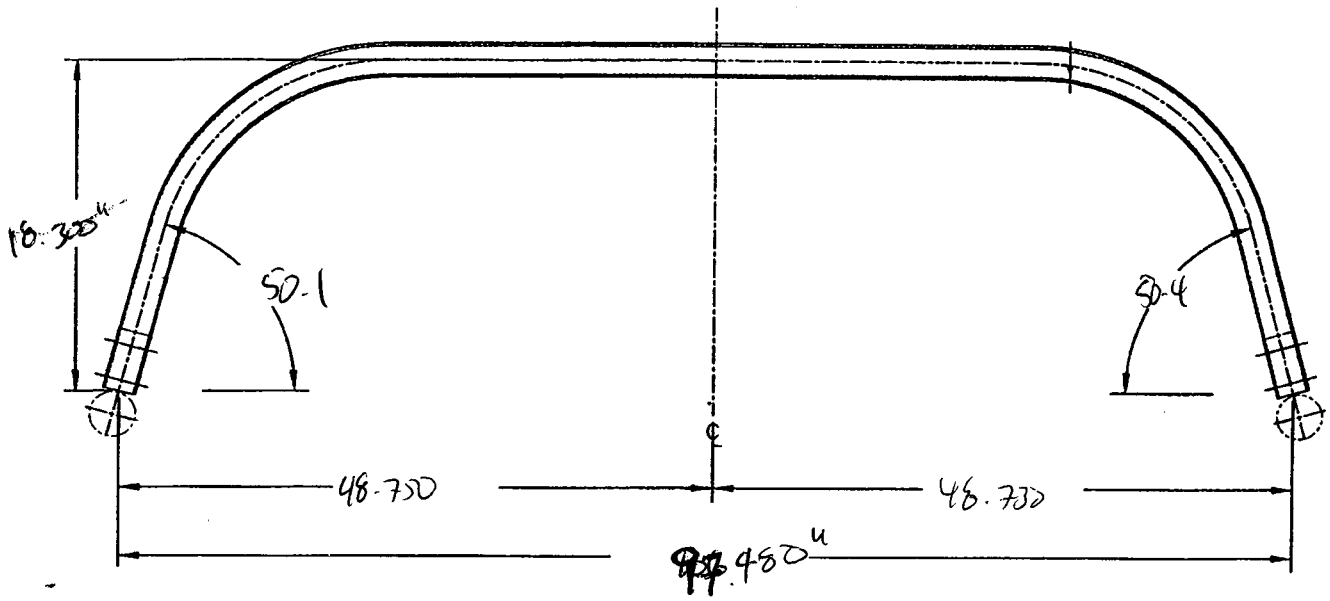
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	74115
Description: Crosstube Low Aft (205/212)	Part Number:	D212-664-207
Inspection Dwg: D212-664-247 **Rev:** B		Page 1 of 1

Required Dimension	Min	Max
Height	18.16	18.42
1/2 Span	48.55	48.81
Angle	49	52
Total Span	97.1	97.62



Comments

QC15 Inspection	
Date	11/06/14

Rev	Date	Change	Revised by	Approved
A	08.02.29	New Issue	KJ/JM	
B	10.04.01	Dwg Rev updated	KJ	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Item	Qty -247	Qty -247B	Part Number	Description
1	X		D212-664-247	CROSSTUBE ASSEMBLY (205/212 LOW AFT)
2		X	D212-664-247B	CROSSTUBE ASSEMBLY (214 LOW AFT)
3	1	1	D6008-132	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	2	2	D3660-1	CUFF
7	4	4	MS21920-28	CLAMP (OR MS21920-30)
8	44	44	CR3212-4-06	RIVET (OR M7885/3-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 674115

R/11-03-21

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6008-132
 FINISHED LENGTH = 128.268±0.020 (BEFORE BENDING/TRIMMING)
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
7) WEIGHT: D212-664-247 = 36.6 lbs (PER IIN-D212-664)
 D212-664-247B = 36.6 lbs (PER IIN-D212-664)
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
16) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
17) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

RELEASED
2009 -10- 7 9

REV.	DESCRIPTION	BY	DATE
B	REVISE GENERAL NOTES/PART LIST; UPDATE TO CURRENT STANDARDS; ADD -247B (ZN C4-2, D5-2)	RF	09.09.30
A	NEW ISSUE	CP	07.07.07

DESIGN		DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D212-664-247	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (205/212 LOW AFT)	NTS
DATE	09.09.30		

COPYRIGHT © 2007 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Dart Aerospace Ltd

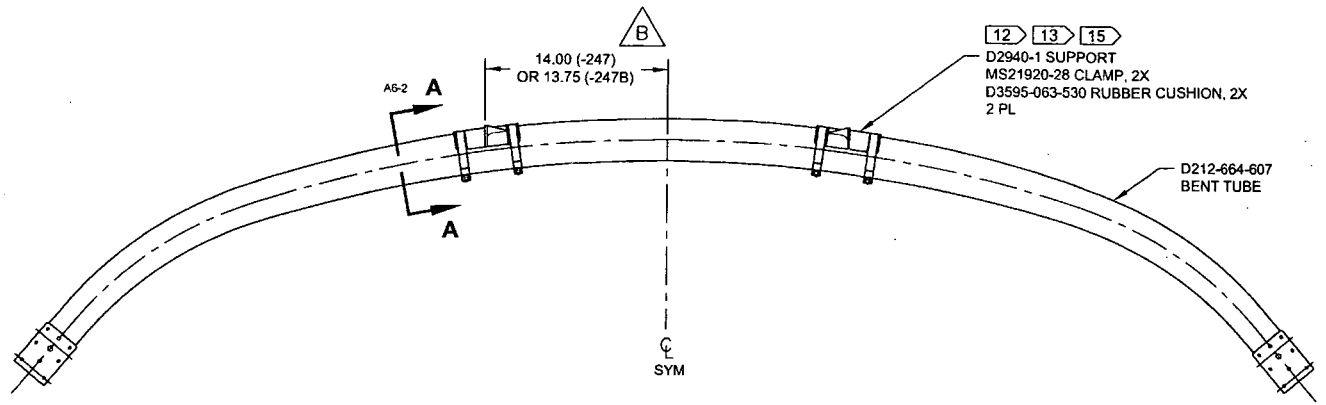
W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

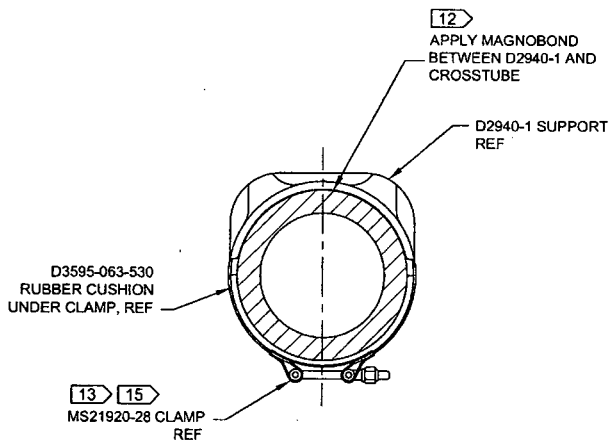
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries



D212-664-247/-247B
ASSEMBLY DETAIL B



SECTION A-A D6-2
SCALE 4X

w/o 67415

RELEASED
2009 -10- 29

DESIGN		**DART AEROSPACE LTD**	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D212-664-247	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (205/212 LOW AFT)	NTS
DATE	09.09.30		

COPYRIGHT © 2007 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Dart Aerospace Ltd

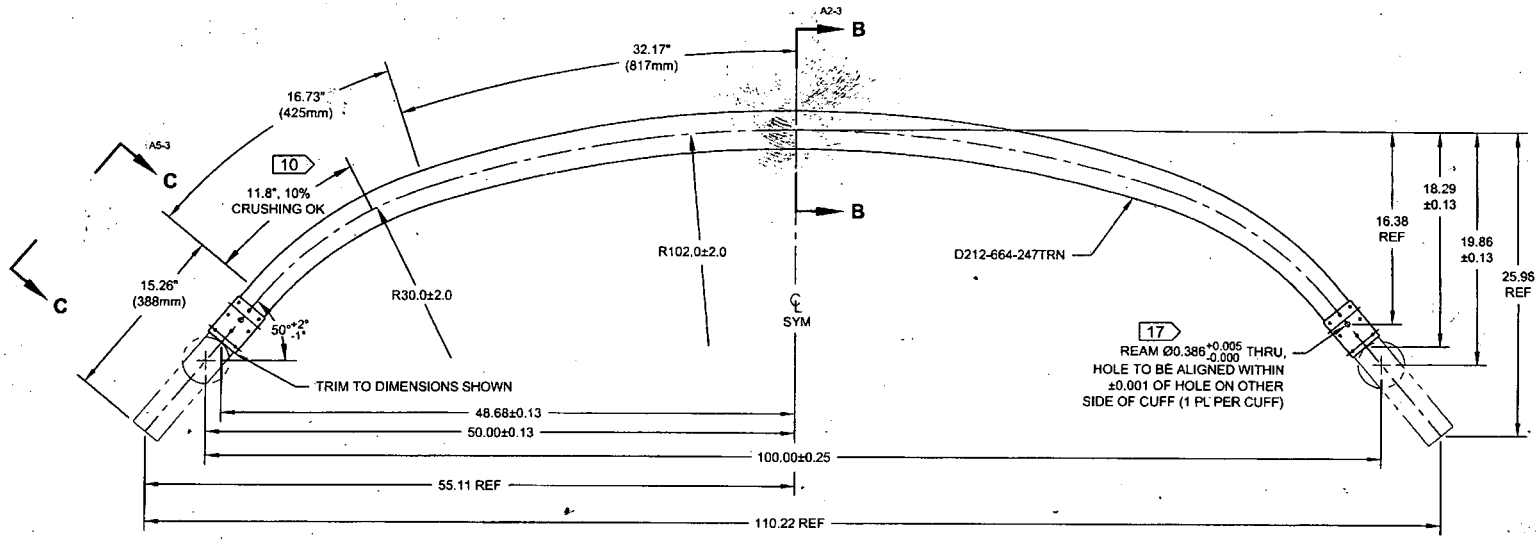
W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

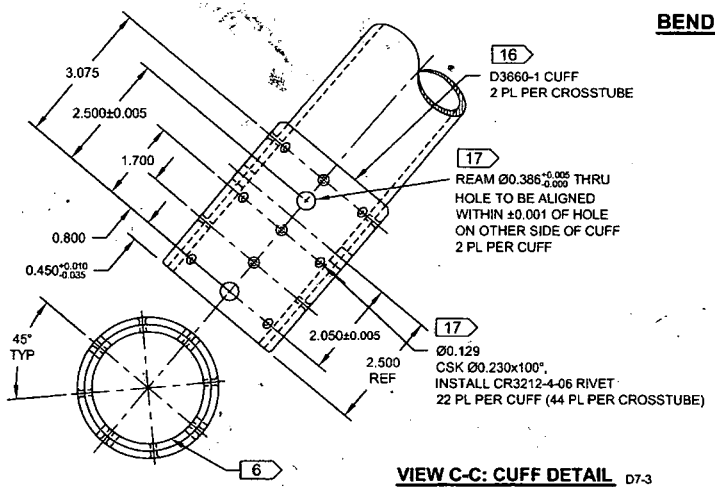
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

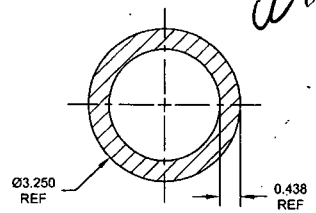
NOTE: Date & initial all entries



D212-664-607
BENDING AND DRILLING DETAIL 10 B



VIEW C-C: CUFF DETAIL D7-3
SCALE 4X



SECTION B-B D4-3
SCALE 4X

w/067415

RELEASED
2009 -10- 29

DESIGN		DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D212-664-247	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (205/212 LOW AFT)	NTS
DATE	09.09.30		

COPYRIGHT © 2007 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Dart Aerospace Ltd

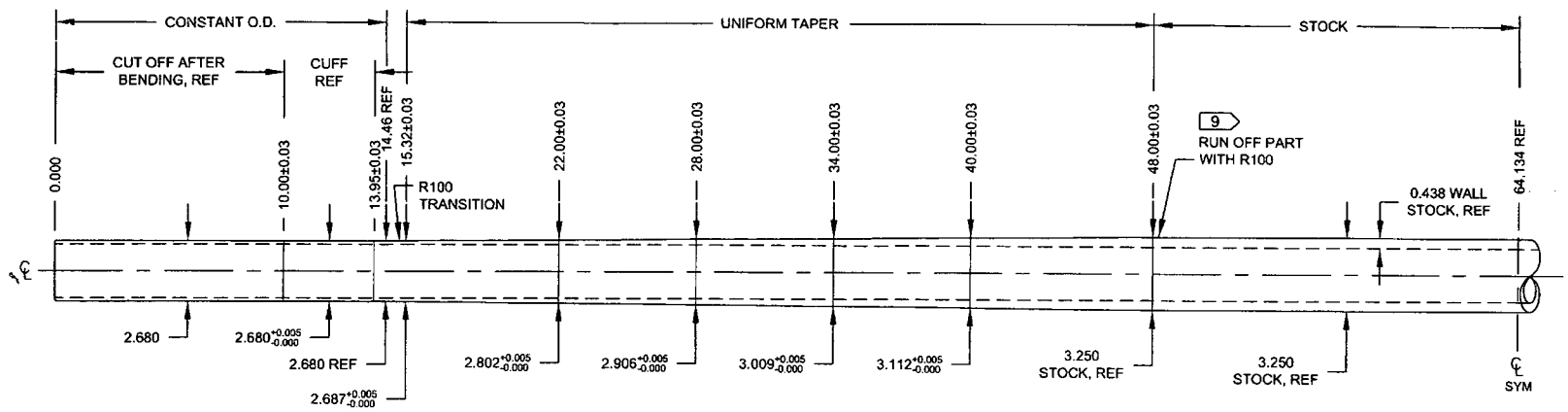
W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries



D212-664-247TRN
TURNING DETAIL

W0074115

RELEASED
2009 -10- 29

DESIGN		**DART AEROSPACE LTD**	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D212-664-247	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (205/212 LOW AFT)	NTS
DATE	09.09.30		

COPYRIGHT © 2007 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

ACUREN

LIQUID PENETRANT TEST REPORT

P- 05617

PAGE 1 OF 1

CLIENT: DART AEROSPACE
ATTENTION: LINDA/LAWRENCE/IAN/MATT
ADDRESS: 270, ABERDEEN RD, HAWKESBURY, ON
PROJECT: WET FLUORESCENT LIQUID PENETRANT ON 2 "CROSSTUBES"
ITEM(S) EXAMINED: SEE BELOW

DATE: JUNE-21-2011 TIME: AM ☑ PM ☐
ACUREN JOB NO. 188-11-02145
PO/WO NO. 14332
WORK LOCATION: AS ADDRESS
ACCEPTANCE STD. ASTM 1417/ESTES REV./DATE 2005

JOB DESCRIPTION

PROCEDURE NO. LTP-03 REV./DATE Dec 8 | TECHNIQUE NO. LTP-03 REV./DATE Dec 8

PART NO.
MATERIAL ALODINE ALUMINUM THICKNESS N/A
SCOPE PERFORMED A WET FLUORESCENT L.P.I. on 100% of THE EXTERNAL SURFACE ON 2 "CROSSTUBES"

TEST DETAILS

METHOD ☑ FLUORESCENT ☐ VISIBLE
FAMILY BRAND MAGNAFLUX
PENETRANT ZL-67 MINIMUM DWELL TIME 10 MIN.
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN.
DEVELOPER SKD-S2 MINIMUM DWELL TIME 10 MIN.
DEVELOPER TYPE ☑ NON AQUEOUS ☐ AQUEOUS ☐ DRY

☑ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST-EMULSIFIED
BLACK LIGHT S/N 13798 ☐ OUTPUT > 1000 µW/CM² ☑ AMBIENT < 2 fc
LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT>100 fc @ SURFACE
OTHER
LIGHT METER S/N CAL DUE DATE AUG/2011

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☑ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☑ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

1 CROSSTUBE W.O.ID 6744 ✓ — ITEM ID D212-664-207 AFT
2 CROSSTUBE W.O.ID 6745 ✓ — ITEM ID D212-664-207 AFT

NO RELEVANT INDICATION WAS DETECTED AS PER APPLICABLE STANDARDS.

11 06 22

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE: Ian T. Titley (PRINT) — (SIGNATURE)
TECHNICIAN (SIGNATURE):
NAME (PRINT): JAMES ROGERS

1ST TECHNICIAN: CGSB LEVEL 2 SNT LEVEL 2 CGSB REG. NO 3249
2ND TECHNICIAN: CGSB LEVEL — SNT LEVEL — CGSB REG. NO —

DTR # E446833

REPORT REVIEWED BY:

NAME	INITIALS

WHITE – CLIENT COPY CANARY – OFFICE COPY PINK – TECHNICIAN COPY GOLD – OFFICE COPY